1   WHAT IS CLAIMED IS:

1.   A method for providing a control signal for a programmable gain attenuator (PGA), the method comprising:

5   setting a value for a fine control portion of a programmable gain attenuator;

operating a coarse AGC portion of a control loop that compares an average absolute value of the signal controlled to a reference value;

terminating the operation of the coarse AGC portion of the control loop; and

operating the fine control portion of the programmable attenuator.

10

2.   A method as in claim 1 wherein the setting of a value for the fine control portion of a programmable gain attenuator comprises setting the value to a midrange value.

15   3.   A method as in claim 1 wherein the comparing of an average absolute value of the signal controlled to a reference value further comprises:

comparing the average absolute value of the signal to be controlled to a value calculated to make signal clipping occur at a rate less than the specified error rate of the system.

20

4.   A method as in claim 3, the method further comprising:

predicting the reference value by using the Chernoff Bound of the probability density function of the signal controlled.

25

30

35